PLOS response to the NIH Public Access RIF

As a nonprofit Open Science publisher, PLOS aims to ensure that Open Science is practicable for the entire scholarly community, and that the reward system of science appropriately acknowledges and honors Open Science practices as contributing to a common good. We wish to express our enthusiastic support for the vision articulated in the OSTP memo of August 25 2022 and our appreciation of the NIH's thoughtful steps toward realizing that vision. We appreciate the opportunity to share our perspective on the NIH's plan to enhance access to the results of research, and improve equity in scholarly publishing for authors and readers alike.

The rapid dissemination and widespread availability of research and underlying data through Open Science is key to meeting major challenges—from the Sars-CoV-2 pandemic to the climate crisis—with effective, evidence-based solutions grounded in rigorous reproducible science. We see Openness as more than the ability to read research articles. Openness includes unrestricted access to the tools and information necessary to understand research results in context, to verify and reproduce results, and to reuse data and methods. True Openness also means equitable opportunities for publication and participation in the peer review process.

1. **How to best ensure equity in publication opportunities for NIH-supported investigators.**

We believe that equitable access to Open publishing opportunities requires a shift away from a volumetric 'pay per publication' model reliant on Article Processing Charges (APCs). APCs have demonstrated that Open Access is viable—but they are exclusionary and they create incentives for publishers to increase volume or price. Waivers, while a useful stop-gap, are not a sustainable solution.

Instead, we should work together to evolve new models based on partnership, collaboration, and community. Already, publishers, including PLOS, are experimenting with new ways to finance Open Access, including Community Action Publishing, Subscribe to Open programs, and more.

In the short term, and in parallel with developing and honing new solutions, we can implement simple changes to better meet author and stakeholder needs.

1. Establish funding mechanisms specifically for research dissemination. Researchers shouldn't have to choose between using their grant to pay a publication fee, or to conduct more experiments.
2. Aggregate funding for publication services fees through a university library or similar body, rather than allocating small amounts through individual research grants. Centralizing administrative functions increases efficiency, reduces the administrative burden on individual researchers and the administrative costs to publishers, and makes it possible to more fairly distribute the cost of publication, putting Open Access within reach for more of the research community.

In the US, libraries and consortia have shown that they are open to testing new methods, and that these types of partnership can be effective both in increasing transparency, and addressing cost inflation.

2. **Steps for improving equity in access and accessibility of publications.**

PLOS supports the NIH's efforts to increase and accelerate access to publicly funded research. Eliminating the embargo will meaningfully benefit researchers, practitioners, and patients alike, and is reasonable and feasible for publishers as well. PLOS has always deposited research with indexing and archiving services as soon as possible following publications.

We also appreciate the emphasis placed on machine readability, which is essential to discoverability, reuse, and reanalysis. However, because the NIH policy provides for access alone, without the legal right to reuse that true Open Access licensing provides, its utility is limited—especially in this era of big data and rich text data mining. Reuse and redistribution are key to maximizing the reach and impact of research.

Equally vital to reproducibility is ensuring access to research outputs other than articles, such as data and methods documentation, including study designs, code, and protocols. The NIH can help to drive change in this area by encouraging, reinforcing, and rewarding the sharing of a broader range of research outputs in line with best practices for reproducibility, transparency, and inclusivity, in the grant application process.

3. **Methods for monitoring evolving costs and impacts on affected communities.**

The expectation of transparency in pricing policy will encourage continued experimentation with more equitable scholarly communications business models, helping to drive positive change.

In the short term, we recommend that the NIH take advantage of the considerable public information on pricing already available, by aligning with established systems (like those of Coalition S). Gathering similar information independently in a new system will create additional administrative tasks and unnecessary expense.

In developing any new monitoring or measurement frameworks, it's crucial to recognize that individual article fees are not an essential part of an Open system. Future monitoring efforts must be structured in a way that allows for the evolution of business models, which is key to increasing equity in publication opportunities. In order to be successfully adopted, any new monitoring framework must also be broadly applicable beyond the NIH, or the US context alone.

4. **Early input on considerations to increase findability and transparency of research.**

The development and consistent application of shared metadata standards is key to discoverability and credibility. We encourage the NIH to invest and participate in

community-based metadata initiatives in order to build systems that work for all, and to prioritize systems with the broadest potential impact, focusing on utility and reuse with the aim of increasing system-wide efficiency and accelerating scientific advancement.

To be effective, metadata and persistent identifiers (PIDs) must be interoperable and follow some level of standardization. Therefore the NIH should recognize the benefits of making specific recommendations in this area, to accelerate harmonization around emerging standards adopted by the scientific community. In developing guidelines for grantees and publishers, the NIH should:

- Specify clear and detailed metadata standards and provide recommendations about which PIDs to use to describe diverse research artifacts and the links between them, both in a machine-readable way at scale, and as human readers accessing individual research elements.
- Set expectations for PIDs and metadata to understand the individual contributions of authors, editors, and peer reviewers, and provide a digital infrastructure to support credit for all contributions.

Conclusion

Although Open Access has made great strides over the past two decades, the majority of research outputs are still not accessible, either because they are behind a paywall (according to a recent analysis of Web of Science and Dimensions data, 53-56% of published research remains closed), or because they have not been shared at all (e.g. datasets, protocols, negative and null results).

In order to actively move away from paywalled research, we need to change the reward system of science, ensuring that researchers receive meaningful credit and recognition for all kinds of contributions. This includes both acknowledgement for a wider variety of research creation and assessment roles, from protocol development through peer review, and a more representative range of research outputs, including information that contextualizes research articles and enables reproducibility.